

Why did I choose python as my first programming?

As a first-year computer science student, I have come to realize that the digital world is far more sophisticated than what we perceive in our daily lives. Computers have become indispensable across nearly every discipline, serving as the backbone of modern industries and research. In essence, much of our world now revolves around code.

This realization motivated me to explore the field of programming more deeply. For my first programming language, I chose Python due to its simplicity, readability, and close resemblance to human language. Beyond its accessible syntax, Python offers a vast ecosystem of educational resources and is widely used across domains ranging from data science to web development and artificial intelligence.

In this article, I will outline the reasons why Python is an excellent starting point for beginners in computer science. I will then present a practical project I developed using Python and a relational database — a Library Management System — which demonstrates how even novice programmers can transform simple ideas into functional software solutions.

Why Python is a Great First Language

1. Simplicity

Python is known for its clean and intuitive syntax, which closely resembles natural language. This simplicity allows beginners to grasp fundamental programming concepts more easily compared to many other languages.

2. Abundant Learning Resources

A quick search online reveals the vast number of tutorials, documentation, and educational materials available for Python. This extensive ecosystem ensures that learners at every level can find guidance, whether they are tackling basic exercises or building complex projects.

3. Versatility of Applications

One of Python's greatest strengths is its applicability across diverse domains. From algorithms, artificial intelligence, and database management to web development and data analysis, Python enables programmers to explore and contribute to multiple fields with a single language.

4. Strong Career Prospects

Python consistently ranks among the most in-demand programming languages worldwide. Its broad range of applications creates strong career opportunities for professionals, making it a valuable skill for both academic research and industry practice.

In summary, Python combines accessibility with power, offering students not only a smooth entry into programming but also a pathway to advanced fields and promising career opportunities.

Learning Algorithms with Python

Python offers several distinctive features that make it one of the most popular and widely used programming languages today.

Algorithms play a fundamental role in computer science and are among the very first concepts every student must learn. A computer can be thought of as a collection of algorithms, each designed to solve a specific problem efficiently.

As someone newly introduced to this fascinating world, I quickly realized that algorithms form the foundation of problem-solving in computing. In a vast and complex digital universe filled with countless challenges and solutions, algorithms provide us with a systematic way to identify the most effective and optimized path.

In essence, learning algorithms is not just about writing code—it is about developing the mindset to analyze problems, design solutions, and think logically. Python, with its simplicity and readability, makes learning algorithms more approachable and helps beginners focus on the concepts rather than the complexity of syntax.

```
def linear_search(arr, target):  
    for i in range(len(arr)):  
        if arr[i] == target:  
            return i  
    return -1  
  
numbers = [10, 20, 30, 40, 50]  
result = linear_search(numbers, 30)  
  
if result != -1:  
    print(f"number in index found: {result}")  
else:  
    print("The number doesn't find")
```

The sample project presented in this article is a **Library Management System**. Despite its simplicity, the system is highly functional and demonstrates how core programming concepts can be applied to a real-world scenario.

The program allows users to manage books by adding and storing details such as title, author, and year of publication in a database. It also provides functionality to search for and delete books as needed. In addition to book management, the system includes features for managing library members. Each member is registered with unique personal information and is assigned a unique ID, making it possible to store, search, and remove member records efficiently.

This project represents my first complete and structured application developed in Python. By integrating a database with Python, it gave me valuable hands-on experience and now serves as an excellent first portfolio project, which I have uploaded to GitHub.

Tools & Technologies

- **Programming Language:** Python
- **Database:** MySQL
- **Library:** mysql-connector-python

```
class Book:

    def __init__(self , title , author , year):

        self.title = title

        self.author = author

        self.year = year

    def info(self):

        return f'{self.title} - {self.author} , ({self.year})'
```

Explanation:

This function inserts a new book into the database by storing its title, author, and year of publication.

Database Design

The database connected to this system consists of two primary tables:

- **Books** – used for storing and managing information about each book, including its title, author, and year of publication.
- **Members** – used for storing and managing information about library members, each identified with unique details for easy retrieval.

This simple database structure makes the system efficient and user-friendly, ensuring that essential library operations can be performed without unnecessary complexity.

Learning Python as a first programming language has provided me with both a solid foundation in programming concepts and the confidence to apply them in practice. Python's simplicity, versatility, and strong community support make it an ideal choice for students entering the world of computer science.

The **Library Management System** project served as my first complete application, demonstrating how theoretical knowledge can be translated into a functional solution. Through this project, I gained valuable experience in integrating Python with databases and designing a system that is both simple and effective.

This is only the beginning of my journey in computer science, but it highlights an important lesson: even small projects can make a significant impact in developing practical skills. I look forward to building more advanced applications in the future and continuing to explore the limitless opportunities that programming provides.